

**UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

Cheetah Omni LLC,
a Texas Limited Liability Company,

Plaintiff,

vs.

**1. Samsung Electronics
America, Inc.,** a Delaware Corporation,
and

**2. Mitsubishi Digital
Electronics America, Inc.**
a Delaware Corporation.

Defendants.

HONORABLE LEONARD DAVIS

CIVIL ACTION NO. 6:08-cv-279

JURY TRIAL DEMANDED

**PLAINTIFF CHEETAH OMNI'S P.R. 4-5(c)
REPLY BRIEF ON CLAIM CONSTRUCTION**

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I. Disputed Terms That Appear In Both Patents

A. "optical signal"¹

The defendants cite *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007) as their claim construction "evidence." In that case, the claim expressly stated that the "signal" has "embedded supplemental data" and is "encoded." It is no surprise that the Federal Circuit held that the "signal" in that patent application must include embedded information. *Nuijten* involved watermarking computer files, and has nothing to do with the optical technology at issue in this case.

The claims of the patents-in-suit do not require "encoding" or "embedded data." Unlike *Nuijten*, Cheetah and the PTO were in complete agreement that the term "optical signal" included light with no embedded data. On three separate occasions, the PTO interpreted the term "optical signal" as covering light beams created by incandescent lamps, which, by definition, contain no embedded information. (E.g., Ex. 4, p. 2 & p. 6; Ex. 7, p. 2.)

The defendants argue that the Court should ignore this intrinsic evidence because "it appears the examiner interpreted the terms as broadly as the bounds of English would allow." (Defs Brf. p. 6.) Defendants cite no evidence to support their assertion. Neither the August 2005 MPEP version they quote, nor the revised August 2006 version,² permit the PTO to read

¹ The parties agree that the Court should construe "optical signal" the same for both patents-in-suit. (*See, e.g.* Defs. Brf. at 21.)

² The August 2006 version of the MPEP was in effect when the PTO was acting on the claims of the application that became the '714 patent. The PTO's last Office Action was entered on January 17, 2007, and it allowed the claims on June 25, 2007, both after the August 2006

a proposed claim “as broadly as the bounds of English would allow.” To the contrary, both require a “reasonable” construction of a claim’s breadth that is “consistent with the specification.” (Exhibit 15, MPEP 2111 (August 2006)). As the PTO made clear in the August 2006 revision, the “broadest reasonable interpretation” standard it applies “must conform to the invention as set forth in the remainder of the specification,” and claims are construed “**not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification.**” *Id.* (Emphasis added.)

The defendants also cite the *In re Zlez* case. *In re Zlez* supports Cheetah, and undermines the defendants' proposed construction. In that case, the Federal Circuit admonished the PTO for “read[ing] unwritten limitations” into the claims that were “contrary to the plain words.” *In re Zlez*, 893 F.2d 319, 322 (Fed.Cir. 1989). The PTO improperly did exactly what the defendants are attempting to do here: read unclaimed limitations into the claim, namely that the “optical signal” must “carry information.” That is prohibited. *Phillips*, 415 F.3d at 1323 (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”)

The defendants also cite a “Telecom Dictionary” to assert that a “signal” is an “electrical wave” used to convey “information.” (Defs. Brf. p. 7.) The patents-in-suit, however, are optical systems – they do not use “electrical waves.” If defendants want to use dictionaries, why don’t they cite an optics dictionary? The reason is, those dictionaries support Cheetah:

amendments to MPEP 2111.

optical signal: A signal that (a) contains optical power and (b) may be transmitted (i) in an optical waveguide, such as an optical fiber, slab, dielectric waveguide, or optical integrated circuit (OIC) or (ii) as a lightbeam in free space.

(Ex. 16, Weik, *Fiber Optics Standard Dictionary*, 3rd Ed. 1997.) This definition is consistent with the PTO's interpretation of the term to cover a lightbeam — without information — transmitted both in an optical waveguide and in free space.

Finally, defendants argue that Cheetah's construction renders the term "signal" meaningless. That is not correct, for two reasons. First, the term “signal” acts as a “handle” for the word “optical,” much as word “apparatus” acts as a “handle” in mechanical patent claims. Second, as Cheetah's construction states, an "optical signal" requires "light of more than one wavelength."

B. "output interface"

Nothing in the '682 or '714 patent requires the output interface to be "for connecting to another system or device." The "output interface" is what passes the output signal after it has been processed, as illustrated in Figures 7a, 7b 8(b), 8(c), 8(g), 10(a-b), 16(b-c) and 17 of the '862 patent. During prosecution of the '714 patent, the PTO interpreted the term "output interface" to cover Silverstein's "projection lens" 32 (Ex. 4, p. 6) and TI's "projection lens" 204 (Ex. 7, p. 4). These devices do not "connect to another system or device" as the defendants' claim construction requires.

II. Disputed Terms From The '862 Patent

A. "comprising a plurality of wavelengths"

Defendants argue that this term requires "*discrete wavelength channels*." The '862 patent never uses the term "discrete," and the defendants provide no support for it. The defendants' importation of the term "channel" from the specification is another attempt to improperly limit the claims to a communication system: "wavelength channels in an optical *communication* system." (Defs.' Brf. at 9, italics added.) As explained in Cheetah's Opening Brief at pp. 6-8, the PTO repeatedly interpreted this term during prosecution of the '714 patent as covering light emitted from a lamp in optical *projection* systems (not optical *communication* systems). That light does not include "discrete channels." "Communication," "information," and "discrete channels" are simply not limitations of claim 13.

B. "separating the optical signal communicated for processing into at least a first portion of optical signal wavelengths and a second portion optical signal wavelengths"

The dispute here is whether the "optical signal" that is separated "must be communications channels, (*i.e.*, whether they must convey information)." (Defs.' Brf. at 10.) For the reasons already expressed above and in Cheetah's Opening Brief, there is no basis for limiting claim 13 in that manner.

Defendants quote the applicant's statement during prosecution that "a separator is shown at least by the unlabeled wavelength division demultiplexer (*e.g.* a separator)." (Defs.' Brf. at 10.) That statement mentions **nothing** about any "channels" or "information." There is no basis for defendants' argument that this statement somehow supports their construction.

C. "dividing at least a portion of the optical signal communicated for processing into at least a first part and a second part, wherein the first part comprises an amplitude that is different than an amplitude of the second part"

Cheetah agrees with the defendants that the "dividing" step operates on the original "optical signal." However, the parties dispute whether the claimed first and second parts must be "copies" of one another. As explained in Cheetah's Opening Brief, the plain language of claim 13 does not require that the first and second parts be "copies" of one another. Importing the term "copies" from the specification is improper. *Phillips*, 415 F.3d at 1323.

The defendants argue that, during prosecution of the grandparent of the '862 patent, a "dividing" step in another claim was limited to a "[a] first copy of the input signal and [a] second copy of the input signal." (Defs.' Brf. at 16.) That amendment supports Cheetah's construction, not the defendants' construction, because claim 13 of the '862 patent, as allowed, does not include the word "copy" that was in the grandparent's claims. Claim 13 of the '862 patent is broader in this respect. *Forest Lab's, Inc. v. Abbott Lab's*, 239 F.3d 1305, 1310 (Fed.Cir. 2001) ("Where claims use different terms, those differences are presumed to reflect a difference in the scope of the claims.")³

³ In footnote 9, Samsung and Mitsubishi disagree about other aspects of the dividing step. For example, Samsung alleges that "the 'dividing' step cannot operate on *any* portion of 'optical signal wavelengths' from the 'separating' step." (Italics added.) In contrast, Mitsubishi argues that "the 'dividing' step may operate on a *remaining* portion of the 'optical signal for processing' other than the 'first portion of optical signal wavelengths' from the 'separating' step." (Italics added.) Regardless of the defendants' diverging positions, these bald footnote assertions are totally unsupported by any analysis, and must be rejected. In addition, it is improper to import negative limitations into claims that do not recite them. *Omega Engineering Inc. v. Raytek Corp.*, 334 F.3d 1314, 1322 (Fed. Cir. 2003) (district court erred by "incorporat[ing] into

D. "the moveable mirror is operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer"

Claim 14 does not require that the mirror be "displaced in an approximately parallel plane to the previous mirror position" as the defendants argue. In fact, defendants' argument is directly refuted by the specification. It says that non-parallel motion is included within the scope of the invention:

For example, the moveable mirror layer may be anchored at its ends and may exhibit some curvature between the anchor points as it moves from one position to another.

(Exhibit 2, col. 6, ll. 7-10.) Defendants do not explain how a mirror – “anchored at its ends” – can move “in an approximately parallel plane to the previous mirror position.” Common sense confirms that it cannot. No object that is anchored at both ends can move in a plane parallel to its previous position. It can only move in an arc. Defendants' proposed construction simply does not cover the embodiments in the patent.

Defendants also improperly raise Cheetah's terminal disclaimer as evidence that claim 14 is limited to the same "piston-like" motion recited in claims of the parent of the '862 patent. (Defs.' Brf. at 18.) The disclaimer was filed in response to the PTO's non-statutory "**obviousness-type**" double patenting rejection — the claims at issue "are **not** identical" to the claims in the parent patent. (Ex. Q to Defs. Brf., p. 3, emphasis added.)

the claim language a novel negative limitation").

Defendants also argue "the PTO noted that even claims in the parent application that did not expressly recite 'piston-like motion' required it nonetheless." (Defs.' Brf. at 18.) The PTO merely issued a rejection stating that a prior art reference (Riza) disclosed "piston-like" mirror movement meeting the "moveable mirror" limitation of the then-pending claims. (Ex. R to Defs. Brf., p. 5.) This rejection says **nothing** about whether the claims were *limited* to "piston-like" motion. It merely shows that the claim language was broad enough to encompass such motion.

E. "to form at least one MEMS output signal having an amplitude, the amplitude of the MEMS output signal capable of being changed by moving the moveable mirror"

The defendants improperly import "phase shift" and "interference" into claim 13. According to the defendants, claim 13 is limited to each of the following four unclaimed steps: "(1) splitting the input signal into **copies**; (2) adjusting the **phase** of the MEMS output signal by moving the moveable mirror; (3) **combining the copies**; and (4) **using phase shift to create interference** causing a change in amplitude." (Defs.' Brf. at 19.)

It is improper to limit claim 13 to the "very specific embodiments of the invention." *Phillips*, 415 F.3d at 1323 ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments."). This rule applies even when the patent at issue "describes only a single embodiment." *Phillips*, 415 F.3d at 1323.

Claim 13 does not recite a specific manner for achieving changes in the amplitude of the output signal as claimed, and a specific manner should not be imported.

III. Disputed Terms From The '714 Patent

A. *"wherein at least some of the mirrors are operable to undergo a partial rotation in response to the control signal, the partial rotation resulting in a reflection of the at least some of the portion of the first signal part"*

The debate with respect to this limitation is whether the mirrors reflect light only when they are parallel to the inner conductive layer. The claim language shown above in italics (omitted in Defendants' Brief) readily resolves the debate. The claim expressly states that a "rotation" of the mirrors results in the "reflection." Obviously, the mirrors are not "parallel" to the inner conductive layer when they are "rotated."

The defendants point to one specific embodiment in the '714 specification that describes a "diffraction" mode in which mirrors are rotated, and a "reflection" mode in which the mirrors are parallel to the inner conducting layer. However, that embodiment cannot undo the plain language of the claim itself — especially where *other* embodiments explain that "rotated" mirrors "reflect" light exactly as the claim recites. This embodiment was explained and illustrated on pp. 12-13 of Cheetah's opening brief. The defendants' proposed construction is contrary to the claim language and excludes embodiments from the specification.

B. *"light pipe"*

According to the prosecution history, "light pipe" is not simply a "fiber-optic line" as defendants assert. It includes much more. For instance, item 260 in the Li patent cited by the PTO during prosecution is a "light pipe" 260 that "receive[s]" and "transmit[s]" light. (Ex. 5, ¶48.) Li makes clear that the light pipe "may be made of a material such as quartz, glass, plastic, or acrylic" and "may be a straight light pipe (SLP), or a tapered light pipe (TLP)." (*Id.*)

Similarly, in the second Office Action, the PTO identified item 304 (Fig. 3) in the TI patent as a light pipe. (Ex. 7, p. 2.) Item 304 is "a glass prism designed to internally reflect light." (Ex. 8, col. 4, ll. 37-41.) This intrinsic evidence shows that the "light pipe" of the '714 patent is not simply a fiber-optic line. Cheetah's proposed construction is a "waveguide." As established in Exhibit 9, this construction is consistent with the prosecution history and with the understanding of those skilled in the art.

C. "an array of optical signal processing devices . . . comprise . . . a plurality of at least partially reflective mirrors . . . wherein at least some of the mirrors are operable to undergo a partial rotation in response to the control signal"

The defendants seek to dramatically narrow the claimed "optical signal processing devices" to merely "variable blazed gratings." The '714 specification specifically states that optical devices other than variable blazed gratings may be used. (Ex. 1, '714 patent, col. 3, ll. 37-42, col. 14, ll. 58-65.) In addition, the claim states "**at least some** of the mirrors are operable to undergo a partial rotation in response to the control signal." To be a "grating," *all* of the mirrors would have to move in unison.

Finally, the defendants again ignore the prosecution history. The PTO determined that digital micro-mirror devices ("DMDs") used in projector systems (not "gratings") meet the "array of optical signal processing devices" limitation of the asserted claims. As explained in Cheetah's Opening Brief at pp. 10-11, the PTO determined that DMDs disclosed in Li, Yamazaki, Silverstein and the TI patent all met the "array of optical signal processing devices" limitation. None of these references discloses a "variable blazed grating."

D. "moveable reflector"

There does not appear to be any disagreement that the claimed moveable reflector moves in response to an applied voltage. The dispute concerns the nature of the reflector itself. The defendants attempt to limit the "moveable reflector" recited in claims 18 and 19 to a "variable blazed grating." Significantly, "a moveable reflector" can never be a "variable blazed grating" because a variable blazed grating necessarily requires a *plurality* of individual moveable reflectors (e.g. Figs. 1-6).⁴ The '714 specification explains that the invention may include "different numbers of . . . reflective surfaces." (Ex. 1, col. 14, ll. 63-64.) In other words, a single "moveable reflector" may be used as claims 18 and 19 recite. A variable blazed grating is only one of several *different* alternatives provided. (Ex. 1, col. 14, ll. 62-65.)

E. "first signal part; second signal part"

Claims 18 and 19 do not require "copies." Regardless, as explained on p. 14 of Cheetah's opening brief, the '714 specification uses the term "copy" loosely to refer to things that are portions of a whole, not "copies" of one another in the conventional sense. The passage the defendants quote on pp. 29-30 of their brief confirms this. And yet again, the defendants ignore the file history which conclusively resolves that "copies" are not required. Cheetah provided a summary of the pertinent file history at pp. 14-15 of its Opening Brief.

The defendants' proposed construction imports unclaimed limitations into the claims, and is *contrary* to the specification and the file history.

⁴ The "moveable reflector" element of claims 18 and 19 is a different component than the "array of optical signal processing devices" recited earlier in the claims.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a) on August 24, 2009. Therefore, this document was served on all counsel who are deemed to have consented to electronic service. Local Rule CV-5(a)(3)(A). Pursuant to Fed.R.Civ.P. 5(d) and Local Rule CV-5(d) and (e), all other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by email on August 24, 2009.

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